Answers for Grade 10 Group Assignments - Quarter #1

<u>Notes</u>:
- Answers for group assignment problems that are out of the workbook can be found in the file titled "G10 Answers…".
- This answer key doesn't include all answers.

Week 1
- *Stick Puzzle*.

Week 2
- *Puzzle!* The Wizard and the Old Man

  If the statement, "I will give you my son" were true, then he would have to give up his daughter, so the statement would be false. If the statement, "I will give you my son" were false, then he would have to give up his son, so the statement would be true. Therefore, it is not possible to say whether the statement is true or false, so <u>he doesn't have to give up either his son or daughter</u>.

Week 3
Sister Puzzle.
Numbering the facts as:
  Fact #1: The taller of Ann and Christy is the younger sister.
  Fact #2: The shorter of Ann and Betty is the older sister.
  Fact #3: The younger of Betty and Christy is the shorter sister.
Now we will consider the possibilities:
  Possibility #1 (Betty and Christy are the sisters):
    If Betty and Christy are indeed the sisters, then fact #1 and fact #2 tell us that the order of their heights (from shortest to tallest) is Betty, Ann, Christy, and that Betty must be older than Christy. But then, fact #3 wouldn't work. *Therefore, Betty and Christy cannot be the sisters.*
  Possibility #2 (Ann and Christy are the sisters):
    If Ann and Christy are indeed the sisters, then fact #2 and fact #3 tell us that the order of their heights (from shortest to tallest) is Christy, Ann, Betty, and that Christy is the youngest of the three girls. But then, fact #1 wouldn't work. *Therefore, Ann and Christy cannot be the sisters.*
  Possibility #3 (Ann and Betty are the sisters):
    If Ann and Betty are indeed the sisters, then fact #1 and fact #3 tell us that Ann is the tallest of the three girls, and that the order of their ages (from youngest to oldest) is Ann, Betty, Christy. Then fact #2 would work! *Therefore, <u>Ann and Betty are the sisters</u>.*

Week 4
- No answers needed

Week 5
- Book I Summary Answers:
  4, 5, 8, 13, 15, 26, 29, 35-41, 47
  Converses: 6, 14, 25, 27 & 28 (converses of 29), 48

Week 6
- <u>Answers</u> for justifying steps in the proof of Theorem I-5:
  2) D20   3) P2   4) Th I-3   5) P1   6) Th. I-4   7) CN3   8) Th. I-4   9) CN3

Week 7

Answers for Tuesday's group assignment: justifying steps in the proof of Theorem I-47:

2) Th. I-46   3) Th. I-31   4) P1   5a) D22   b) P4   c) CN2   d) from drawing

6a) D22   b) Th I-4   7a) D22   b) Th. I-14   c) P4   d) Th. I-27   e) Th. I-41

8) Th. I-41   9) CN1   10) CN1   11) not needed   12) CN2   13) from drawing   14) CN1

Week 8   No answers needed.

For Tuesday

3) Angle C must be 90°

4) The Theorem of Thales